PROTECTING THE EARTH'S LAST GREAT WILDERNESS: ANTARCTICA

A major step to save the Earth's last great wilderness was taken on 3 October 1991, when 24 countries signed in Madrid a draft agreement which would ban mineral and oil exploration in Antarctica for at least 50 years.

The draft agreement—the Protocol on Environmental Protection—has been hailed as a success by environmentalists all over the world, and by the United Nations General Assembly. The Assembly, on 6 December 1991, welcomed the signing of the Protocol, "which among other things banned prospecting and mining in and around Antarctica for the next fifty years".

The Protocol also calls for the designation of Antarctica as "a natural reserve devoted to peace and science". It includes new regulations for wildlife protection, waste disposal, marine pollution and continued monitoring of the Antarctic.

The new instrument would come into force when all countries which are parties to the Antarctic Treaty deposit their instruments of ratification or accession. It would also form an integral part of the Antarctic Treaty system.

The Antarctic Treaty of 1959 was designed to ensure that Antarctica will be used exclusively for peaceful purposes and will not become either the scene or the object of international discord. It prohibits military activity, and commits States parties to cooperate in scientific investigations. Nuclear explosions and the disposal of radioactive waste are forbidden. The Treaty currently has 40 parties.[1]

[1] The States Parties are Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Chile, China, Colombia, Cuba, Czechoslovakia, Democratic People's Republic of Korea, Denmark, Ecuador, Finland, France, Germany, Greece, Guatemala, Hungary, India, Italy, Japan, Netherlands, New Zealand, Norway, Papua New Guinea, Peru, Poland, the Republic of Korea, Romania, the Russian Federation, South Africa, Spain, Sweden, Switzerland, the United Kingdom, the United States and Uruguay.

UNITED NATIONS

GROWING CONCERNS ABOUT THE ANTARCTIC ENVIRONMENT

While welcoming the signing of the Protocol on Environmental Protection, the General Assembly in December 1991 expressed concern over the environmental degradation of Antarctica. Such degradation is analysed in an October 1991 report of the UN Secretary-General on the state of the environment in Antarctica.[2]

There is a strong relationship between the Antarctic environment and the global ecosystem, the report says. Antarctica is not only an important venue for determining global changes, but is also clearly influenced by them.

The Antarctic has an important role in the global climate system by acting, among other things, as one of Earth's "refrigerators", affecting the global atmosphere and ocean circulation. Polar seas have a particularly important role in the exchange of carbon dioxide between the ocean and the atmosphere.

Recent observations suggest that the Antarctic atmosphere has been disturbed by pollutants originating at lower altitudes, particularly by industrial pollutants from the Northern Hemisphere. In the atmosphere over the continent, a marked increase has been detected of carbon dioxide, halocarbons (which are believed to contribute to global warming and ozone layer depletion), sulphur dioxide and radioactive substances.

OZONE DEPLETION

Ozone layer depletion is a major problem. The sharp decrease of atmospheric ozone over Antarctica in the austral spring during the past decade seems to be dramatic evidence of humanity's influence on the Antarctic. Ozone decreases of up to 50 per cent of the 1956-1978 averages for Oc-

[2] A/46/590

tober, and up to 95 per cent locally between 15 km and 20 km altitudes, were observed in 1987, 1989 and 1990. Chlorofluorocarbons, the chemicals which are believed to contribute to global ozone depletion, are still widely used in refrigeration, the manufacture of foam insulation and the rendering of industrial solvents.

Global effects of ozone depletion are not yet fully understood, the report says. But since the ozone layer shields the Earth from hazardous solar radiation, its depletion may have adverse effects on the Antarctic environment, particularly on marine life. For instance, increased radiation may affect plankton, which is essential for the Antarctic food chain. That would have great repercussions on the aquatic environment, affecting marine plants and animals.

GREENHOUSE GASES

The increase of carbon dioxide and methane levels in the Earth's atmosphere is also cause for concern, because they contribute to the greenhouse effect, which portends a significant rise in global mean temperatures over the next 50 years. Studies of Antarctic ice-cores have revealed an increase in carbon dioxide in the atmosphere over the last century from a level of about 260 parts per million to the present 345 parts per million, says the report.

While the greenhouse effect has global implications, some mathematical models suggest that the warming might be especially large at polar altitudes. The thawing of part of the ice-cap could have a significant effect on world-wide sea levels.

LAND ENVIRONMENT

The Antarctic land environment is particularly vulnerable to damage caused by human activities, the report says. Owing to the harsh living conditions, biological processes operate very slowly, intermittently and on a small scale. This makes the Antarctic ecosystem extremely fragile, easily disrupted and slow in regrowing.

Scientific activities are the main causes of direct man-made environmental impact. Human presence has many forms—construction, wastes, disturbance to plants and animals, fuel spillage.... None the less, the impact of routine scientific activities has been up to now limited and localized.

The impact of tourism has so far been minimal since no major tourist facilities have been built. But tourism has already affected the ecosystem. For instance, at the Cape Royds Adelie penguin rookery, there was a 50 per cent reduction in the birds' breeding population over six years. This was attributed to stress from repeated visits by tourists and by personnel of a nearby scientific station.

POLLUTION OF NATURAL HABITATS

Various forms of pollution have occurred. In 1989, an accidental spill of 50,000 gallons of fuel was reported at an air base. In a recent accident, an estimated 70,000 gallons of diesel oil leaked into the sea after a shipwreck involving the freighter Bahia Paraiso. The spill damaged an area rich in wildlife, affecting sea birds and crustaceans.

While no extinction of whale species has been reported, there are no signs of stock recovery despite various conservation measures. According to some estimates, in 1989 only a few hundred blue whales remained, out of an estimated original population of about a quarter of a million; some thousands of fin whales, down from an original population of more than half a million; and some thousands of humpback and right whales, down from 100,000.

A dramatic drop in total fish stocks was noted in the early 1980s. One species (*Notothenia rossii*) was heavily overfished in 1970-1971, and has not recovered since. Concerns were also raised for seals, whales, birds and other species caught accidentally during fishing. Several measures are now in effect to protect populations that have been depleted, including bans on fishing for certain species.

Public awareness of the threats to the Antarctic environment has increased, the report says. In the past five years, various initiatives have been discussed to answer problems of environmental protection. Such discussions have been held among

public and private non-governmental organizations, as well as within the framework of the Antarctic Treaty System.

UNITED NATIONS INITIATIVES

The General Assembly has been dealing with the question of Antarctica since 1983, when that question was inscribed on the agenda on the initiative of Antigua and Barbuda and Malaysia, and has discussed it every year.

The Assembly's most recent debate, in November 1991, reflected all countries' growing concern for the Antarctic environment and the global ecosystem.

For instance, Malaysia underscored the fundamental influence of Antarctica on the Earth's climate, and consequently on its food and material production. Guinea warned that the truly fragile Antarctic ecosystem was threatened by overfishing, toxic waste dumping and oil spills from tankers.

Antigua and Barbuda called for an end to the proliferation of research stations, whose number had gone up from 34 to 57 between 1983 and 1989, with considerable cumulative impact on the environment. For Nepal, the serious implications of ozone depletion and dramatic climate change required that the world act together to avoid disaster.

As a result of this concern, the Assembly in December 1991 for the first time requested the Secretary-General to prepare an annual report on the state of the Antarctic environment.

The Assembly also welcomed "the increasing recognition of the significant impact that Antarctica exerts on the global environment" and "the increasing support... for the establishment of Antarctica as a natural reserve or world park to ensure the protection and conservation of its environment". It stressed the need to prevent or minimize any negative impact of human activity resulting from the large number of scientific stations and expeditions, including tourism. It also urged the international community to ensure that all activities in Antarctica guarantee the protection of the environment.

The importance of Antarctica for understanding the global ecosystem was also stressed at the United Nations Conference on Environment and Development—the Earth Summit—held in Rio de Janeiro in June 1992.

Agenda 21, the blueprint for action adopted at the Conference, states that "in recognition of the value of Antarctica as an area for the conduct of scientific research, in particular research essential to understanding the global environment, States carrying out such research activities in Antarctica should, as provided for in Article III of the Antarctic Treaty, continue to: (*a*) ensure that data and information resulting from such research are freely available to the international community; (*b*) enhance access of the international scientific community and specialized agencies of the United Nations to such data and information, including the encouragement of periodic seminars and symposia."

The concern at the United Nations, the warnings of the scientific community and the Protocol on Environmental Protection are all signs of the growing global consensus on the need to preserve the Antarctic environment.

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